of Belgium

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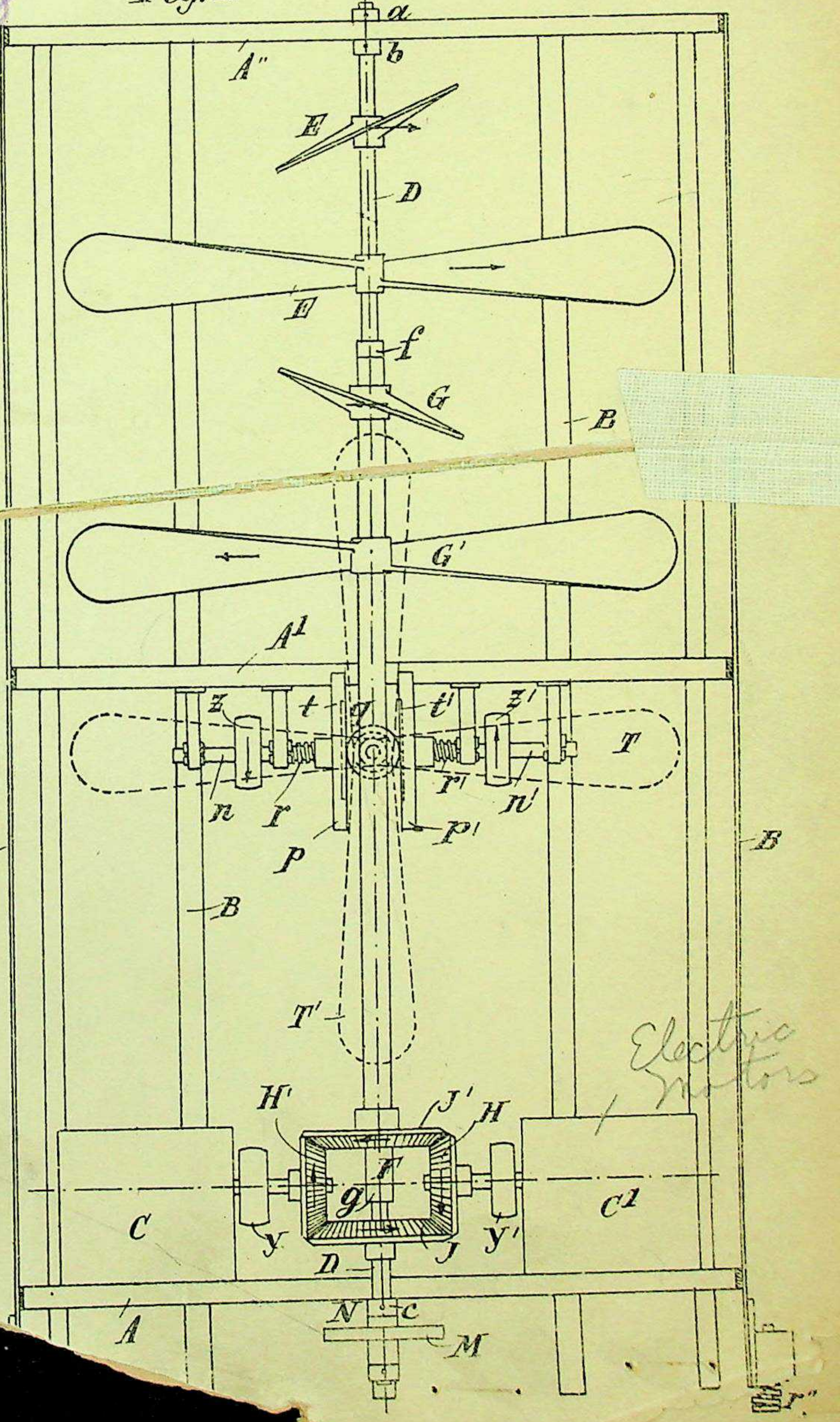
Acc. Aug. 6, 1908

See Farmer 976873 (19)

Fig. 1.



[illegible] M
to rotate
car

Electric
motors

F 384411

PHOTOGRAP

FEB 27 1912

EXAMINER

19

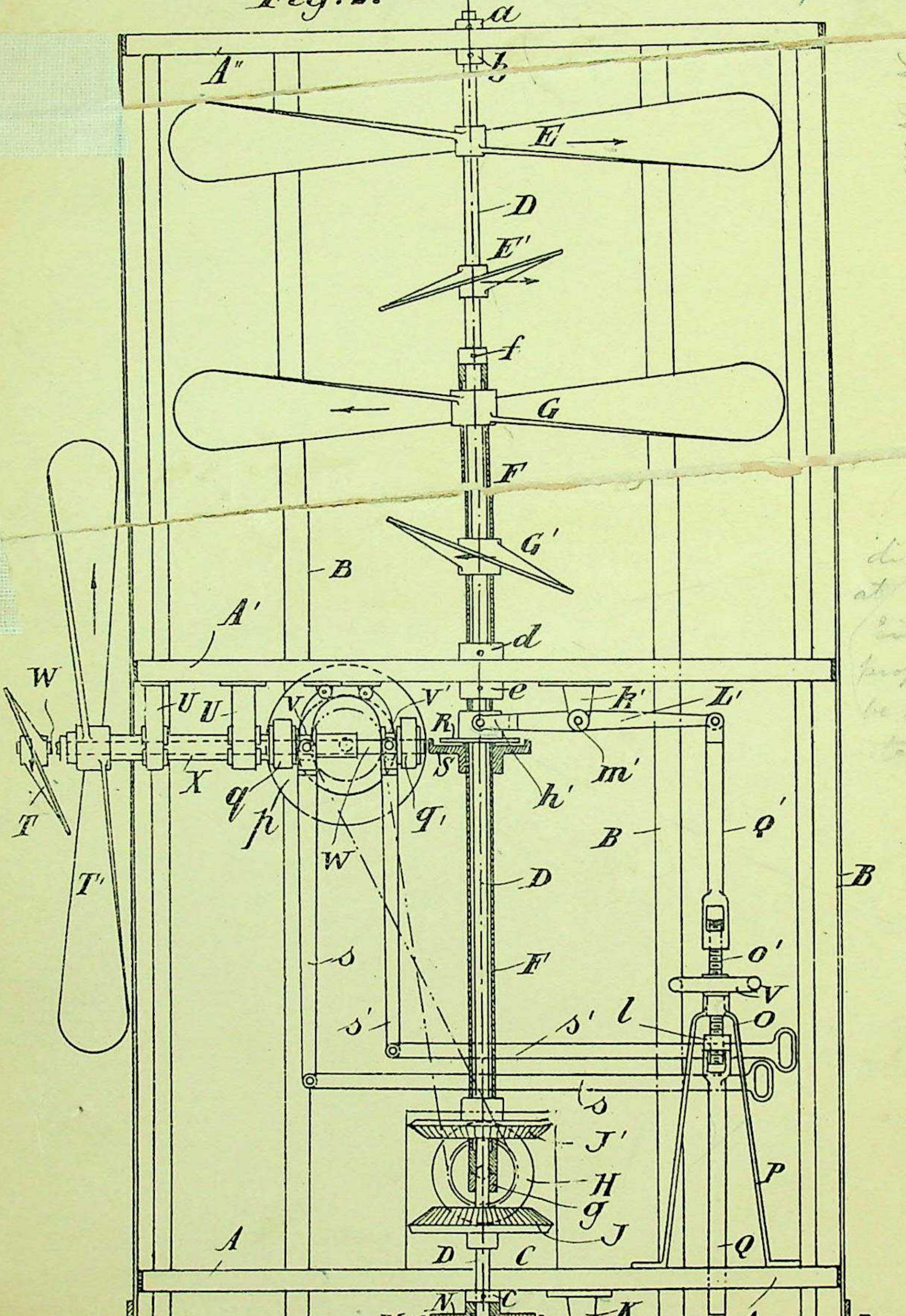
(3 SHEETS)

SHEET 2.

98-1

A. Nov

Fig. 2.



disc hollow at centre

Either hor. propeller can be stopped or rotated as desired

makes a [illegible] of machine a whole.

38798

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PHOTOGRAPHS.

244-19

N° 8628 A.D. 1908

Date of Application, 18th Apr., 1908—Accepted, 6th Aug., 1908

COMPLETE SPECIFICATION.

Improvements in and relating to Aeroplanes and Flying Machines.

I, Arnold Demoulin, of 17a Pepinster, Quai Nicolai, Belgium, Manufacturer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

No aeroplane
[illegible] be shown

The object of the present invention is an aeroplane having a cage with several platforms in which turn, in a contrary direction two concentric vertical shafts, carrying a series of propellors or screws and actuated by electric motors, the said shafts being provided with safety-brakes, the arrangement being such that the aeroplane can be given any horizontal direction desired. The said motors actuate also two horizontal, concentric shafts each carrying a screw turning in reverse directions so as to ensure stability of the apparatus. The drawing annexed hereto, given by way of example, shows a manner of carrying the invention into effect.

Fig. 1. is a front view.

Fig. 2. a side view, and

Fig. 3. is a plan view, of an aeroplane constructed according to this invention.

The apparatus shown is constructed as follows:—Three circular platforms A, A^1 and A^{11} of either full or lattice-work, connected together by tie-rods or uprights B, form the cage of the machine, two light motors C and C^1 are arranged on the lower platform A to actuate the screws, giving the ascending motion and movement of direction. This platform, and if desired the other platforms, or the higher of them, acts as a supporting surface for the aeronaut and other persons.

A vertical shaft D turns in the three platforms in the ball bearings or boxes. Screws or propellers E and E^1 are fixed on this shaft D at the upper part.

A second hollow shaft F kept in place by rings *f* and *g* and in the interior of which the shaft D turns, likewise carries two screws G and G^1.

These two shafts D and F are actuated in the following manner:—

On the horizontal driving shaft of each motor are keyed two toothed bevel wheels H and H^1 which actuate two other bevel wheels J and J^1 horizontally keyed on the shafts D and F. The direction of rotation of these gearings is indicated on the plan by arrows. The motors C and C^1 give the shafts D and F a rotary motion which may be as rapid as is desired. The screws placed on these shafts are employed to raise the aeroplane. The shaft D carries three rings *a*, *b*, *c*, which are supported on the ball-boxes of the platforms. The shaft F likewise carries two bearings *d* and *e*, which are placed above and below the platform A^1 these boxes or rings keep the shafts D and F in contact with the platform and permit these shafts whilst turning to raise the aeroplane.

A safety brake is applied on these shafts D and F and allows the aeronaut to regulate the direction of the apparatus in the following manner; in order to bring the brake on the shaft D the following system is situated below the platform A. A bracket K fixed to the platform A carries a lever L provided at one extremity with a fork *h*. This fork carries two pins *i* which are fixed in the

[*Price 8d.*]

socket of the plate M sliding freely upwardly on the shaft D. Above this plate is situated another plate N keyed on D. The other extremity of the lever L is connected to a rod Q, one end of which carries a socket *l*. In this socket *l* is introduced a screw O keyed to a hand wheel V. This screw O is fixed on a support P fixed to the platform A.

The aeronaut wishing to place his apparatus in the desired direction turns the wheel V in one direction or the other according to the thread or worm of the screw which may be right-handed or left-handed. In consequence of starting the screw O in the threaded socket *l*, a descending movement is produced of the rod Q connected to the extremity of the lever L. In consequence of this pressure the lever L moving on first M of the bracket K, the fork *h* is raised and pins *i* lift the plate M which comes into contact with the plate N. In consequence of this contact the plate M is driven by N according to its direction of rotation.

In acting by the wheel V on the lever L, the other wormed end O^1 draws the lever Q^1 downwards. This latter is connected to a lever L^1 suspended from the platform A^1 by the bracket K^1. The extremity of this lever L^1 also carries like L, two pins which are fixed in the socket of the plate R. This latter like M slides freely up and down on the shaft F on which a plate S is keyed.

In making the plate M work so as to come into contact with N, in consequence of the rigid connection of these levers, the plate R rises up again. If it is desired to produce the contrary effect to change the direction given to the apparatus by the movement which we have just described, the wheel V is manipulated in the direction opposed to that which has just been given to it. The rod Q^1 is pushed upwards and the lever L^1, which oscillating around the pivot m^1 pushes the fork and the plate R downwards this comes into contact with S and undergoing the rotation of S gives to the cage a horizontal direction contrary to that obtained previously.

The shaft D turns in one direction and the axis F turns in the opposite direction, so as to give to the aeroplane a perfect stability. These two movements of rotation are caused quite naturally by the bevel driving gear of the motors.

The screws shown in the drawing have two blades but if it is desired they can have four, six, or any desired number. The boss of these screws is constructed according to the system of the free wheels of bicycles, in such a maner that if the motors failed, the screws could continue to turn and thus produce the effect of a parachute.

The propelling movement is given to the apparatus by the screws T and T^1. These placed on horizontal shafts likewise receive their rotary speed from the motors. Two supports U fixed aft on the platform A^1 support these shafts. The screw T is keyed on a shaft W which passes to the interior of the shaft X on which is keyed the screw T^1.

Two pulleys Y and Y^1 of the motors drive the corresponding pulleys Z and Z^1 fixed aft of the platform A^1. These pulleys Z and Z^1 are mounted on the shafts *n* and n^1. At one extremity of these shafts are keyed two centrally hollowed discs *p* and p^1. The disc *p* actuates a pulley *q* of cardboard or of leather or other material and the disc p^1 actuates another pulley q^1. These discs are brought into contact with *q* and q^1 by the open springs *r* and r^1. These discs turning in the reverse direction transmit their rotation to the pulleys *q* and q^1 likewise in the reverse direction. Consequently the screws T and T^1 turning in reverse direction, give stability to the apparatus.

In order to ease or increase the speed of these screws independently of the speed which is given to them by the motors, the pulleys *q* and q^1 are moved away from, or drawn towards, the centre of the discs by means of the levers *s* and s^1.

In giving the ascending movement to the apparatus, the aeronaut leaves the screws T and T^1 at rest, to put these into working order later by means of the

levers and handles *s* each, the pulleys q and q^1 which
are found withi discs, are drawn into contact
with the drivi

The pulley e exterior shaft X carrying
the screw T^1 a on a stationary feather fixed
on the axis W ca eys q and q^1 each have a recessed
boss v and v^1 into whic s of the levers s and s^1 the points of
support of which are fix orm A^1.

In order to reduce too e apparatus the springs r^{11} are placed
under the same in boxes ds or uprights B.

Of course, it is underst ention is not limited to the forms and
the dimensions of the parts the drawings nor to the number of the
screws therein enumerated.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:

1. An aeroplane having horizontal vertical screws characterised by the fact, that the horizontal screws giving the ascending movement, are disposed in series on two concentric vertical shafts turning in the reverse direction to each other and actuated by suitable electric motors, whilst the vertical screws, giving the horizontal propelling movement, are disposed on two horizontal, concentric shafts, likewise turning in reverse directions one to the other and being able to be thrown into and out of gear as desired.
2. Aeroplanes as claimed in Claim 1, characterised by the fact, that each vertical shaft carries a plate with which a corresponding disc can come into contact carried by a oscillating lever, the two levers being capable of being moved simultaneously by the assistance of a hand wheel actuating a screw turning in nuts carried by the connecting rods of the said levers.
3. A form of the aeroplane claimed in Claim 1, characterised by the fact, that the horizontal screws are arranged on their shafts like free wheels in such a manner as to be able to turn freely in case of stoppage of the motors and the fall of the apparatus and thus to serve as a parachute.

Dated this 16th day of April 1908.

HY. FAIRBROTHER,
Agent for Applicant
33, Cannon St., London.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1908.

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